

AMENDMENTS TO THE CLAIMS:

The listing of claims shown below will replace all prior versions, and listings of claims in the Application:

1-65 (Cancelled)

66. (Previously Added) Apparatus for interconnecting a plurality of ports for transferring received Fibre Channel frames, the Fibre Channel frames including frame data, between multiple attached devices comprising:

a first port adapted to support multiple link speeds,

a second port adapted to support at least one link speed,

connectivity apparatus, the connectivity apparatus disposed between and coupled to the first port and the second port, and

a plurality of data buses, the data buses connecting the first port to the connectivity apparatus,

wherein the number of data buses utilized to transfer the frame data received by the first port is the same irrespective of whether the link speeds of the first and second port are the same or different.

67. (Previously Added) The apparatus of claim 66 further including a processor and memory, and logic to couple them to the connectivity apparatus.

68. (Previously Added) The apparatus of claim 66 further including a set of registers to store pending route requests.

69. (Previously Added) The apparatus of claim 68 further including a hardware state machine coupled to the registers for inserting and removing route requests.

70. (Previously Added) The apparatus of claim 66 further including a processor and attached memory, the memory containing instructions to convert Fibre Channel frames to Ethernet frames.

71. (Previously Added) An interconnect system having a plurality of ports transferring received Fibre Channel frames between multiple attached devices comprising,

a first port supporting a first link speed,

a second port supporting a second link speed, the second link speed different from the first port link speed,

a third port supporting a third link speed, the third link speed is the same as either the first port link speed or the second port link speed,

a connectivity apparatus coupled to each port, affecting the transfer of frames between any two ports, and

the connectivity apparatus supporting a fixed frame transfer rate and a fixed number of data buses, the same frame transfer rate and the same number of data buses being used for each frame transferred between any two ports.

72. (Previously Added) The interconnect system of Claim 71 wherein the fixed frame transfer rate includes a fixed number of active data buses transferring actual data signals for all data transfers.

73. (Previously Added) The interconnect system of Claim 71 wherein the connectivity apparatus is clocked at the same frequency for every frame.

74. (Cancelled)

75. (Previously Added) A method for interconnecting a plurality of ports for transferring received Fibre Channel frames, the Fibre Channel frames including frame data, between multiple attached devices, the method comprising the steps of:

receiving an incoming frame at a first port adapted to support multiple link speeds,

determining the destination port to route the first frame,

the destination port's link speed being different from the first port, and

transferring the Fibre Channel frame from the first port to the destination port through a connectivity apparatus, coupled to the first and the destination ports, the connectivity apparatus including a plurality of data buses,

wherein the number of data buses utilized to transfer the frame data received by the first port is the same irrespective of whether the link speeds of the first and second port are the same or different.

76. (Previously Added) A method for interconnecting attached Fibre Channel devices a switch comprising the steps of:

receiving an incoming frame at a first port,

determining the destination port to route the first frame,

the destination port's link speed being different from the first port, and

transferring the Fibre Channel frame from the first port to the destination port through a connectivity apparatus, coupled to the first and the destination ports, the connectivity apparatus including a plurality of data buses,

the connectivity apparatus supporting a fixed frame transfer rate and a fixed number of data buses, the same frame transfer rate and the same number of data buses being used for each frame transferred between any two ports.

77. (Amended) A system for interconnecting a Fibre Channel device with an Ethernet device at another speed, comprising:

a Fibre Channel port adapted to support multiple link speeds,
an Ethernet port,
processor and memory to effect the protocol conversion from Fibre Channel to Ethernet, the processor and memory being coupled to the Ethernet port,
connectivity apparatus, the connectivity apparatus disposed between and coupled to the Fibre Channel port, and the processor and memory,
a plurality of data buses, the data buses connecting the Fibre Channel port to the connectivity apparatus,
wherein the number of data buses utilized to transfer the frame data received by the ~~Fiber~~ Fibre Channel port is the same irrespective of the link speed of the Fibre Channel port.

78. (Amended) A method for sending frames between a Fibre Channel network operating at one speed and an Ethernet network operating at another speed, the method comprising the steps of:

receiving an incoming frame at a first Fibre Channel port at a first speed,
determining the destination port which to route the first Fibre Channel frame, the destination port contained within a protocol conversion module, the destination port being coupled to an Ethernet network,
transferring the Fibre Channel frame from the ~~Fiber~~ Fibre Channel port through a connectivity apparatus to the protocol conversion module, the connectivity apparatus transferring all frames using a constant number of data signals and a constant clock rate,
converting the Fibre Channel frame to a frame format compatible to being

transmitted on an Ethernet network, and

transmitting the frame out the destination port.

79. (Previously Added) The apparatus of Claim 66 wherein the connectivity apparatus includes a crossbar switch.

80. (Previously Added) The apparatus of Claim 71 wherein the connectivity apparatus includes a crossbar switch.

81. (Previously Added) The apparatus of Claim 74 wherein the connectivity apparatus includes a crossbar switch.

82. (Previously Added) The method of Claim 75 wherein the connectivity apparatus includes a crossbar switch.

83. (Previously Added) The method of Claim 76 wherein the connectivity apparatus includes a crossbar switch.

84. (Previously Added) The system of Claim 77 wherein the connectivity apparatus includes a crossbar switch.

85. (Previously Added) The method of Claim 78 wherein the connectivity apparatus includes a crossbar switch.

86. (New) The system of Claim 77 wherein route determination logic is coupled to the connectivity apparatus and the Fibre Channel port.

87. (New) The system of Claim 77 wherein an embedded processor and memory is coupled to the connectivity apparatus.

88. (New) The system of Claim 87 wherein the embedded processor performs one or more of the following functions: configures the interconnect system, collects and reports management parameters, implements the fabric defined servers such as the Simple name Server and Directory

Services.

89. (New) The system of Claim 77 wherein the processor and memory to affect the protocol conversion is also coupled to the connectivity apparatus.

90. (New) The system of Claim 77 wherein the protocol conversion function also includes one or more of the following: static RAM (SRAM), Dynamic RAM (DRAM), control and DMA functions, an Ethernet MAC and an Ethernet ASIC.

91. (New) The apparatus of Claim 66 wherein at least one Fibre Channel port is attached to one or more port bypass circuits.

92. (New) The apparatus of Claim 91 wherein the port bypass circuits are controlled by the interconnect system.

93. (New) The apparatus of Claim 91 wherein the port bypass circuits also contain one or more of the following functions: Clock Recovery unit, Digital Signal Detect unit, a copper or fibre plug in module.

94. (New) The system of Claim 77 wherein the Fibre Channel port is coupled to route determination logic through one or more of the following: unidirectional communications signals, bidirectional communications bus composed of greater than one data signal.

95. (New) The system of Claim 86 wherein the route determination logic affects the path through the connectivity apparatus.

96. (New) The system of Claim 86 wherein the route determination logic includes one or more of the following blocks: pending route request register, connectivity apparatus connection state information, Fibre Channel port link speed, Fibre Channel port link status, Fibre Channel port FLOGI occurred indication.